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from the area of common distribution northward have helped to keep down any modifications which might otherwise have appeared after long continued and perfect isolation under changed conditions? Mr. Walter Deane gives me the following pertinent quotation from a "Notice of Flowering Plants and Ferns collected on both sides of Davis Strait and Baffin's Bay," read by Mr. James Taylor before the Botanical Society of Edinburgh.* "*S. herbacea*, coast to snow line, covers extensive tracts, and that too where most other plants cease to appear, except *Junci* and *Luzulae*. In dry fine weather I have often seen its downy seeds wafted in clouds over land and sea." These downy seeds might be transported a very great distance by a strong upper-current of wind, and the alpine summit of a high mountain, with its surface constantly moist and dripping from melting snow-drifts, would present all the conditions favorable for their germination. After this, the gaining and maintaining of a permanent foothold would depend upon climatic influences, to which *S. herbacea* seems peculiarly sensitive. It is not found on the Rocky Mountains, where four at least, of the species with which it is associated in Greenland are widely distributed, though in strongly modified forms. It is noticeably present on all the Arctic shores of the North Atlantic, both American and European; and just as noticeably absent from all the shores of the North Pacific, both American and Asiatic. It does not vary to meet varying conditions, but thrives where these are favorable, and does not grow at all where they are unfavorable.

Notes upon *Zygodesmus* and its New Species.

The genus *Zygodesmus* is something of a puzzle to the student of systematic fungology, and therefore does not lack in interesting points of structure. Of the twenty-seven species enumerated by Saccardo,* sixteen are known to be North American. None of these infest growing tissues, and a large percentage, fully twenty out of the twenty-seven, are found upon dead wood or bark. It is interesting, therefore, to note that a new species was found early last summer near New Brunswick, N. J., upon the flower-bearing stems of *Pyrola rotundifolia*, namely *Zygodes-*

*Trans. Vol. 7, 1862.

mus Pyrolæ, Ell. and Hals. The color of the hyphæ of this species is a distinct cinnamon, and forms a thick felt-like covering upon the stem, beginning at the surface of the ground and extending up for about two inches. The whole genus may be considered as a chromatic one, for nearly all colors are represented, as the following names of some of the species will indicate: *Z. fuscus*, *Z. atro-ruber*, *Z. violaceo-fuscus*, *Z. rubiginosus*, *Z. ferrugineus*, *Z. olivascens*, *Z. ochraceus*, there being two species of the latter in Saccardo!

Within the past month another species has been found, and this one has all the characteristics of a genuine parasite, which was not so evident in the *Pyrola* species. While inspecting a bed of cultivated violets under glass for the leaf spot fungus (*Cercospora Violæ*, Sacc.), *Botrytis* and other fungi, it was a surprise to find several leaves upon a few plants in a group covered with a chalky white coat, reminding one somewhat of the *Erysipheæ*, but without the powdery appearance. A microscopic examination of the infested parts of the leaves showed that the characteristic threads of the *Zygodesmus*, easily recognized by the excessive branching and lateral union of adjoining cells in the hyphæ, were all through the tissue of the host, and had caused the affected parts to lose their green color. A thick mat of hyphæ had formed upon the surface, and threads could be traced from this through the breathing pores to the ramifications within. Upon leaves long infested the tissue becomes dry and contracted, and a cream color replaces the almost pure white. That the species is not confined to the violet is demonstrated by finding a few sprays of parsley growing in the vicinity of the attacked violets, afflicted by the same *Zygodesmus* and whitened almost as if sprayed with a lime-wash.

Besides adding a well established parasite to the genus which is generally held as saprophytic, the violet specimens reach another step in the chromatic scale, and naturally the species has been named *Z. albidus*, Ell. & Hals. and will probably be distributed in the Ellis North American Fungi.

BYRON D. HALSTED.

RUTGERS COLLEGE, April 18, 1890.

*Sylloge Fungorum, Vol. iv. pp. 283-288.